**Chapter 9: Endocrine System**

Functions of the Endocrine System

Hormones

* Control of Hormone Release
  + Negative Feedback

Oxytocin Parathyroid Hormone

Prolactin Calcitonin Glucagon Estrogen

Adrenocorticotropic Hormone Testosterone Progesterone Aldosterone

Follicle Stimulating Hormone Antidiuretic Hormone Melatonin Insulin

Sex Chromosomes (Androgens vs. Estrogens) Thyroid Stimulating Hormone

**Chapter 10: Blood**

Components of Blood

* Types of Formed Elements
  + Erythrocytes
    - Function
    - Hemoglobin
  + Leukocytes
    - Function
    - Types of Leukocytes (most to least abundant)
  + Thromocytes
    - Function
    - Megakaryocytes
* Plasma
  + Plasma Proteins
    - Albumin, Clotting Proteins, Antibodies
    - Acidosis vs. Alkalosis

Hematopoiesis and Hemostasis

Blood Types (Antigens and Antibodies)

**Chapter 11: Cardiovascular System**

Arteries vs. Veins

Pulmonary vs. Systemic Circulation

Major Arteries and Veins

* Aorta, Pulmonary Trunk
* Pulmonary Veins, Superior and Inferior Venae Cavae

Major Chambers and Valves

* Left and Right Atrium
* Left and Right Ventricles
* Mitral and Tricuspid AV Valves
* Pulmonary and Aortic SL Valves
* Interventricular Septum

Intrinsic Conduction System

* SA Node, AV Node, AV Bundles, Bundle Branches, Purkinje Fibers

**Diagram of the Heart**

**Chapter 12: Immunity /Lymphatic System**

Immune System Defense

* Innate (Non-Specific)
  + Function
  + 1st Line of Defense
    - Skin and Mucus Membranes
    - Stomach Mucosa
    - Saliva and Lacrimal Fluid
    - Mucus
  + 2nd Line of Defense
    - Natural Killer Cells
      * Perforin
    - Inflammatory Response
      * 4 Common Indicators
      * Neutrophils
      * Diapedesis and chemotaxis
    - Phagocytes
      * Monocytes and Macrophages
    - Antimicrobial Proteins
      * Complement and Interferon
      * MAC – Complement Fixation
      * Opsonization
    - Fever
      * Pyrogens
* Adaptive (Specific)
  + Third Line of Defense
    - Antigen Specific
      * Antigens and Allergies
    - Systemic
    - Memory
  + Humoral (Antibody Mediated)
    - Antibodies (Immunoglobulins)
    - Plasma Cells and Memory B Cells
    - Active vs. Passive Immunity
      * Naturally vs. Artificially Acquired
    - Antibody Function
  + Cellular (Cell Mediated)
    - T Cell Clones
      * Cytotoxic T Cells
      * Helper T Cells

**Chapter 13: Respiratory System**

4 Events of Respiration

1. Pulmonary Ventilation (Normal Breathing)

2. External Respiration (Lungs and Blood)

3. Gas Exchange -Diffusion (Bicarbonate – CO2 and Oxyhemoglobin – O2)

4. Internal Respiration (Blood and Tissues)

Hyperventilation vs. Hypoventilation and Blood pH / CO2 levels

Pulmonary Ventilation

* Inspiration vs. Expiration
* 2 Breathing Muscles (Diaphragm and External Intercostals)

Title Volume, Total Lung Capacity, Vital Capacity, Inspiratory Reserve, Expiratory Reserve, Residual Volume

**Diagram of the Respiratory System**

**Chapter 14: Digestive System**

Organs (Know functions of each)

* Alimentary Canal (GI tract)
  + Mouth, Pharynx, Esophagus, Stomach, Small Intestines, Large Intestines, Anus
* Accessory Organs
  + Liver, Pancreas, Gall bladder, teeth, salivary glands

Autonomic (Parasympathetic) Nervous System

Mastication, Deglutition, Bolus, Chyme, Segmentation, Peristalsis

Functions of Digestive System

* 1. Ingestion 4. Chemical Digestion
* 2. Propulsion 5. Absorption
* 3. Mechanical Digestion 6. Defecation

**Chapter 15: Urinary System**

Function of Kidneys

Nephrons (Function and Anatomy)

Micturition

Process of Urine Formation

* Glomerular Filtration
* Tubular Reabsorption
* Tubular Secretion

Water and Electrolyte Balance (Osmoreceptors, Aldosterone, Antidiuretic Hormone)

Respiratory System Controls (Blood Buffer)

Renal Arteries and Veins

**Diagram of a Kidney**

**Chapter 16: Reproductive System**

Gametes (Sperm and Ovum – # and type of Chromosomes)

Male Reproductive System (Functions of)

* Testes , Seminiferous Tubules, Epidiymis, Ductus (vas) Deferens, Ejaculatory Duct, Urethra
* Prostate, Bulbourethral Glands, Seminal Vesicles, Semen

Process of Spermatogenesis

* Spermatogonia, Primary Spermatocyte, Secondary Spermatocyte, Spermatids, Spermiogenesis, Sperm

Female Reproductive System (Functions of)

* Estrogen and Progesterone
* Ovaries, Uterine Tubes, Uterus, Vagina
* Ovarian Follicles, Ovulation, Corpus Luteum, Fimbriae, Cilia

Process of Oogenesis

* Oogonia, Primary Oocyte, Primary Follicle, Ovulation, Polar Body, Secondary Oocyte, Ovum (Zygote)
* Where fertilization occurs

**Diagram of the Male and Female Reproductive System**

**Short Answers:**

**Body Systems and Homeostasis**

**Systemic and Pulmonary Blood Flow**

**3 Lines of Defense**

**3 Steps of Urine Formation**